TUTORIAL 5

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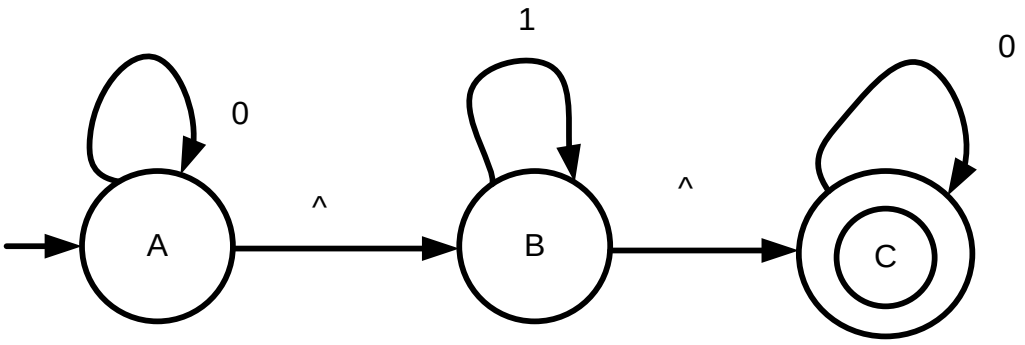
1. Consider the NFA given by the following diagram:



Find the equivalent NFA without $\wedge-$transitions.

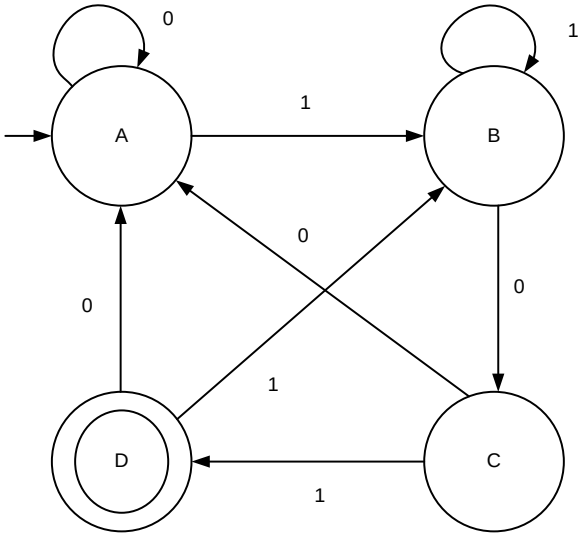
2. Use Thompson's construction to construct a NFA for the following regular expression

$(aa \mid b)^*(a \mid cc)^*$ and convert this NDFA into DFA by using subset construction and then minimize it.

3. Use Thompson's construction to construct a NFA for the following regular expression

$(a \mid b)a^*$ and convert this NDFA into DFA by using subset construction and then minimize it.

4. Find the regular expression corresponding to the figure by using state elimination method and Arden Theorem



5. Write the left-linear and right-linear regular grammar over $\sum = \{a, b\}$, such that string contains at least one ***a*** or one ***b***.

6. Write the left-linear and right-linear regular grammar over $\sum = \{0,1\}$, containing substring ***001.***

7. Write a left-linear and right-linear regular grammar over $\sum = \{a, b\}$, such that string contain at most three ***a's***.

8. Using Pumping Lemma, prove that $L = \{ww \mid w \in \{0,1\}^*\}$ is not regular.